IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re:	Manfred Gilbert	Confirmation No:	3928
Serial No:	10/694,690	Group:	2872
Filed:	October 28, 2003	Examiner:	Pritchett, Joshua L.
For:	Comparison Optical System		
Customer No.:	29127		
Attorney Docket No.	21295.68 (H5745US)		

APPELLANT'S BRIEF

VIA FACSIMILE: **571-273-8300**
Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450,
Alexandria, Virginia 22313-1450

Sir:

This is the Applicants' appeal from the final Office Action, mailed on October 17, 2005.

A one-month extension of time is requested for this filing.

Real Party in Interest

Leica Microsystems CMS GMBH, the Assignee of the present application is the real party in interest.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of Claims

Claims 1-20 are pending in the application. Claim 1-20 have been rejected and are being hereby appealed.

Status of Amendments

All amendments have been entered. There were no post final amendments or proposed amendments.

Summary of Claimed Subject Matter

It is the object of the invention to create a comparison optical system that is comprised of several image-acquiring optical subsystems, with each image-acquiring subsystems being associated with its respective motorized XYZ stage. The comparison system further comprises a bridge, which couples the several image-acquiring optical subsystems mechanically and optically to one another, and a control unit for synchronously moving all motorized XYZ stages in all three spatial directions.

The inventive comparison optical system also is implemented as two macroscopes, a bridge which connects the two macroscopes mechanically and optically to one another, wherein each of the two macroscopes is associated with its respective motorized XYZ stage, comprising a first XYZ stage and a second XYZ stage. A bridge connects tow macroscopes mechanically and optically to one another. A control unit for synchronously moving all the motorized XYZ stages in motorized fashion, in all three spatial directions is provided.

The object of the invention is also achieved by a comparison optical system comprising two microscopes, each of the two macroscopes being associated with its respective motorized XYZ stage, comprising a first XYZ stage and a second XYZ stage. Also provided is a bridge which connects the two microscopes mechanically and optically to one another, and a control unit for synchronously moving all the motorized XYZ stages in motorized fashion in all three spatial directions.

The invention has the advantage in that each image-acquiring optical subsystem possesses a XYZ stage, movable in motorized fashion, on which a sample is placed. Also provided is a control unit that moves the XYZ stages (8a, 8b), movable in motorized fashion, synchronously in all three spatial directions. If the comparison optical systems

are embodied as macroscopes, the control unit is embodied as a control and adjustment apparatus on which is provided an on/off switch with which synchronous displacement of the XYZ stages can be switched on and off.

Synchronous displacement has the advantage that upon actuation of an actuation element for a motion direction of one XYZ stage, both XYZ stages are displaced in exactly uniform synchronous fashion. The macroscopes can likewise each have associated with them a remote control device that can be used for stage and focus control. It is also possible to activate the stage and focus control systems of the two remote control devices in such a way that a synchronous motion is possible.

The comparison optical system can likewise be constructed from microscopes. In this case a remote control device is connected to each microscope and can be activated so as to make possible, for example by actuation of an actuation element of the remote control device, synchronous displacement of the XYZ stages that are mounted on the microscope stand. The structures present on the specimens to be examined are often larger than the region which is visible in the eyepiece or with an attached camera. In order to allow the entire specimen to be compared, both XYZ stages must be displaced synchronously in the X direction, Y direction, and Z direction. With synchronous displacement it is possible to shift the two XYZ stages synchronously using only one X actuation element or Y actuation element or the Z fine displacement control for each of the X, Y, and Z axes respectively. This has the advantage that evaluation of the specimens to be examined is considerably improved. A prerequisite for synchronization is that at least the three axes of the XYZ stages be motorized.

Grounds of Rejection to be Reviewed on Appeal

I. Whether claims 1, 3-5, and 13-20 are non-obvious under 35 U.S.C. §103(a) as over U.S. Patent No. 4,123,170 to Uchiyama in view of U.S. Patent No. 5,557,456 to Garner.

II. Whether claim 2 is non-obvious under 35 U.S.C. §103(a) as over U.S. Patent No. 4,123,170 to Uchiyama in view of U.S. Patent No. 5,557,456 to Garner and in view of U.S. Patent 4,403,839 to Reichel.

III. Whether claims 6-12 are non-obvious under 35 U.S.C. §103(a) as over U.S. Patent No. 4,123,170 to Uchiyama in view of U.S. Patent No. 5,557,456 to Garner and in view of U.S. Patent 4,403,839 to Reichel.

Arguments

I. With regard to Issue I on appeal, Applicant argues as follows.

For an obviousness rejection to be proper, the Patent Office must meet the burden of establishing a prima facie case of obviousness. The Patent Office must meet the burden of establishing that (1) all elements of the invention are disclosed in the cited publications, which (2) must have a suggestion, teaching or motivation for one of ordinary skill in the art to modify a reference or combined references.[1] The cited publications should (3) explicitly provide a reasonable expectation of success, determined from the position of one of ordinary skill in the art at the time the invention was made.[2] As argued below, the Patent Office has not met this burden.

The Patent Office asserted in the final Office Action that Uchiyama "two image acquiring optical subsystems (26 and 27 as well as 29 and 30) a bridge which connects two microscope subsystems mechanically and optically to one another 'Fig. 5', respective XY stages (21 and 20) movable in motorized fashion..." (page 2).

Applicant asserts that Uchiyama contains no such disclosure. To the contrary, in Col. 4, lines 50-59 Uchiyama discloses that:

> In the above embodiment since **the mask 20 and the sample mask 21** are placed on the same carrier table 22 and are moved in the orthogonal X and Y directions, the two masks

1 *In re Sang Su Lee, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002).*
2 *In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970);*
Amgen v. Chugai Pharmaceuticals Co., 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996);

> have to be aligned accurately in the X and Y directions. If the two masks 20 and 21 are not aligned correctly or the carrier table 22 has a play, the scanned pattern portions of the masks 20 and 21 become different from each other with the movement of the carrier table 22 and thus the accurate defect detection could not be effected.

Uchiyama also discloses in Col. 4, lines 29-31 that

> In this embodiment a mask 20 to be tested and a sample mask 21 having no defect are placed **on a single carrier table 22.**

It absolutely clear from the disclosure in Uchiyama that it does not disclose 'several image acquiring optical subsystems, each subsystem being associated with its respective motorized XYZ stage', as claimed in independent Claim 1. What the Patent Office said were two XY stages - are actually two masks - a sample mask 21 and a tested mask 20, which are samples, specimens and not motorized stages. Uchiyama explicitly discloses that both masks 20 and 21 are placed on a single carrier table 22. That same one single carrier table 22 moves in the X-Y directions, so the two masks that are placed on that same table move together with the table.

Since no respective XYZ stages, each of which is associated with their own respective image-acquiring optical subsystem, is disclosed in Uchiyama, the first requirement of the non-obviousness test has not been met.

Furthermore, the Patent Office has stated in the final Office Action that Uchiyama discloses "a control unit for moving the XY stage in motorized fashion (col. 4 lines 50-53" . The referenced Col. 4 lines 50-53 of Uchiyama read:

> In the above embodiment since the mask 20 and the sample mask 21 are placed on the same carrier table 22 and are moved in the orthogonal X and Y directions

There is absolutely nothing in these lines, as well as anywhere else in Uchiyama, disclosing a control unit for synchronously moving all motorized XYZ stages in all three spatial directions. The mention in Uchiyama that the sample carrier table 22 could move in the orthogonal X and Y directions provides no disclosure of a control unit possibly accomplishing such movement. Moreover, there is no disclosure at all in the whole

Uchiyama patent of what makes the sample carrier table of Uchiyama move. Col. 8, lines 50-51 if Uchiyama say that there is stage position detection device, which supplies a signal representing coordinates of stage 22. This has nothing to do with a control unit synchronously moving at least two motorized XYZ stages. Logically, the word "synchronously" couldn't even be found anywhere in the Uchiyama patent (by running the Edit-Find function on the HTML text of the Uchiyama patent).

The disclosure of Garner does not provide the missing disclosure of Uchiyama. Garner discloses "[t]he automated microscope system [which] comprises a microscope 1 to examine a sample 2 on a motorized stage 3 driven by X axis motor 4, Y axis motor 5 and Z axis motor 6." (Col. 3, lines 41-45). Nowhere in Garner could there be found a disclosure of 'several image acquiring optical subsystems, each subsystem being associated with its respective motorized XYZ stage', as claimed in independent Claim 1. Similarly, no disclosure of a control unit for synchronously moving all motorized XYZ stages in all three spatial directions cold be found in Garner.

Therefore, neither Uchiyama nor Garner alone, nor in combination with each other, disclose each and every element of the invention as claimed in independent Claim 1. Therefore, the first prong of the prima facie case of obviousness has not been satisfied by the Patent Office and this rejection should be withdrawn.

With regard to Claim 3-5, which depend off Claim 1, similarly to the arguments presented in support of patentability of Claim 1, the combined disclosures of Uchiyama and Garner do not disclose each and every element of Claims 3-5. As the Claims dependent off patentable Claim 1, Claims 3-5 should be patentable.

With regard to independent Claim 13, the arguments presented in support of patentability of Claim 1 are repeated hereby in their entirety. The lack of the disclosure of the respective motorized XYZ stages associated with its own microscope as an image-acquiring optical subsystem, as well as lack of disclosure of a control unit synchronously

moving all motorized XYZ stages in the combined disclosures of Uchiyama and Garner evidences that the first requirement of the obviousness test is not satisfied. Therefore, the obviousness rejection of Claim 13 should be withdrawn and Claim 13 should be allowed. Claims 14-20, which depend off Claim 13 are, therefore, also non-obvious and should be allowed.

II. With regard to Issue II on appeal, Applicant argues as follows.

All the arguments presented above with regard to independent Claim 1 are applicable and are repeated in support of patentability of Claim 2. Claims 2 is patentable for the same reasons and as dependent off patentable Claim 1.

III. With regard to Issue III on appeal, Applicant argues as follows.

The arguments presented above in support of patentability of Claim 1 are repeated hereby in their entirety in support of patentability of independent Claim 6.

The lack of the disclosure of the respective motorized XYZ stages associated with its own macroscope as an image-acquiring optical subsystem, as well as lack of disclosure of a control unit synchronously moving all motorized XYZ stages in the combined disclosures of Uchiyama, Garner and Reichel evidences that the first requirement of the obviousness test is not satisfied. The fact that Reichel's disclosure is directed to a comparator macroscope does not cure the deficiency of disclosure of each every element of the invention as claimed in independent Claim 6. Therefore, the obviousness rejection of Claim 6 should be withdrawn and Claim 6 should be allowed. Claims 7-12, which depend off Claim 6 are, therefore, also non-obvious and should be allowed.

Additionally, with regard to dependent Claim 9-10 and 15-16, Applicant wishes to point out that nowhere in the combination of patents cited by the Patent Office is there a disclosure of one X actuation element to displace synchronously both the first and second stages in the X direction, one Y actuation element to displace synchronously both the first and second stages in the Y direction, and one Z actuation element to displace synchronously both the first and second stages in the Z direction, as claimed in Claims 9 and 15. Similarly nowhere in the combined disclosure of the cited patents is there a disclosure of one on/off switch synchronous displacement of the two motorized XYZ stages, as claimed in Claims 10 and 16. The corresponding disclosure could be found in paragraphs [0042] and [0043] of the specification.

For the foregoing reasons, Applicant believes that the pending rejections should be withdrawn, and that the present application should be passed to issue. Should any questions arise, please contact the undersigned.

Respectfully submitted,

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Claims Appendix

1. (Previously presented) A comparison optical system comprising:
several image-acquiring optical subsystems, each image-acquiring system associated with its respective motorized XYZ stage;
a bridge coupling the several image-acquiring optical subsystems mechanically and optically to one another
and a control unit for synchronously moving all motorized XYZ stages in in all three spatial directions.

2. (Original) The comparison optical system as defined in Claim 1, wherein each of the image-acquiring optical subsystems is a macroscope.

3. (Original) The comparison optical system as defined in Claim 1, wherein each of the image-acquiring optical subsystems is a microscope.

4. (Original) The comparison optical system as defined in Claim 1 wherein two image-acquiring optical subsystems are mechanically and optically coupled with the bridge.

5. (Original) The comparison optical system as defined in Claim 1, wherein at least for the displacement of the XYZ stages in the X direction, Y direction, and Z direction, a motor is provided which receives the signals of the control unit and converts them into a corresponding rotation.

6. (Previously presented) A comparison optical system comprising:
two macroscopes, each of the two macroscopes being associated with its respective motorized XYZ stage, comprising a first XYZ stage and a second

XYZ stage;
a bridge which connects the two macroscopes mechanically and optically to one another; and
a control unit for synchronously moving all the motorized XYZ stages in motorized fashion in all three spatial directions.

7. (Original) The comparison optical system as defined in Claim 6, wherein the control unit is a control and adjustment apparatus that is associated with the macroscopes.

8. (Previously presented) The comparison optical system as defined in Claim 6, wherein the control unit is a control and adjustment apparatus that is associated with the macroscopes; and a first remote control device is respectively connected to the first macroscope; and a second remote control device is connected to the second macroscope.

9. (Original) The comparison optical system as defined in Claim 8, wherein the control and adjustment apparatus possesses an X actuation element for displacement of the first XYZ stage and an X actuation element for displacement of the second XYZ stage, a Y actuation element for displacement of the first XYZ state and a Y actuation element for displacement of the second XYZ stage, and a Z fine displacement control for the first XYZ stage and a Z fine displacement control for the second XYZ stage.

10. (Original) The comparison optical system as defined in Claim 9, wherein the control and adjustment apparatus encompasses an on/off switch for a synchronous displacement of the two XYZ stages which acts in such a way that

when the on/off switch for synchronous displacement is switched on, both XYZ stages are movable synchronously regardless of the actuation of the X actuation element or X actuation element, the Y actuation element or Y actuation element, the Z fine displacement control or the Z fine displacement control.

11. (Original) The comparison optical system as defined in Claim 9, wherein the first remote control device and the second remote control device encompass a plurality of actuation elements; and the actuation elements of the first remote control device and of the second remote control device are also synchronizable in pairs.

12. (Original) The comparison optical system as defined in Claim 6, wherein the comparison optical system has associated with it a PC that, via an RS232 cable or a USB cable, supplies control signals to the comparison optical system and receives image data or settings data from the comparison optical system.

13. (Previously presented) A comparison optical system comprising:
two microscopes, each of the two macroscopes being associated with its respective motorized XYZ stage, comprising a first XYZ stage and a second XYZ stage;
a bridge which connects the two microscopes mechanically and optically to one another; and
a control unit for synchronously moving all the motorized XYZ stages in motorized fashion in all three spatial directions.

14. (Original) The comparison optical system as defined in Claim 13, wherein the control unit is a first remote control device that is associated with the first microscope; and a second remote control device is associated with the second microscope.

15. (Original) The comparison optical system as defined in Claim 13, wherein the control unit is a control and adjustment apparatus which possesses an X actuation element for displacement of the first XYZ stage and an X actuation element for displacement of the second XYZ stage, a Y actuation element for displacement of the first XYZ state and a Y actuation element for displacement of the second XYZ stage, and a Z fine displacement control for the first XYZ stage and a Z fine displacement control for the second XYZ stage.

16. (Original) The comparison optical system as defined in Claim 15, wherein the control and adjustment apparatus encompasses an on/off switch for a synchronous displacement of the two XYZ stages which acts in such a way that when the on/off switch for synchronous displacement is switched on, both XYZ stages are movable synchronously regardless of the actuation of the X actuation element or X actuation element, the Y actuation element or Y actuation element, the Z fine displacement control or the Z fine displacement control.

17. (Original) The comparison optical system as defined in Claim 14, wherein the first remote control device and the second remote control device encompass a plurality of actuation elements; and the actuation elements of the first remote control device and of the second remote control device are also synchronizable in pairs.

18. (Original) The comparison optical system as defined in Claim 13, wherein at least for the displacement of the XYZ stages in the X direction, Y direction, and Z direction, a motor is provided which receives the signals of the control unit and converts them into a corresponding rotation.

19. (Original) The comparison optical system as defined in Claim 1, wherein the comparison optical system has associated with it a PC that, via an RS232 cable or a USB cable, supplies control signals to the comparison optical system and receives image data or settings data from the comparison optical system.

20. (Previously presented) The comparison optical system as defined in Claim 13, wherein the synchronization of the XYZ stages can be switched on and off by way of a computer.

Evidence Appendix

None

Related proceedings appendix

None